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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,703	03/22/2004	Margaret A. Wheatley	D2027/20140	8723

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EXAMINER

SCHLIENTZ, LEAH H

ART UNIT	PAPER NUMBER
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1618

MAIL DATE	DELIVERY MODE
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05/02/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/805,703

Applicant(s)

WHEATLEY ET AL.

Examiner

Leah Schlientz

Art Unit

1618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 and 11-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-10, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/17/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group III in the reply filed on 3/20/2007 is acknowledged. The traversal is on the ground(s) that claim 4 is a product by process claim which is dependent upon claims 1, 2 or 3. This is not found persuasive because a microcapsule or nanocapsule can be made by another materially different method, as cited in the Requirement for Restriction, mailed 2/20/2007. Applicant further contends that a search of Groups I – IV would not place a serious burden on the Office. This is not found persuasive because different search strategies are required for various synthetic, diagnostic, or therapeutic methods, including searches of patent and non-patent literature. In addition, a reference to a product made by a given method would not necessarily render a materially different method of making or using a product obvious. If the product claims of Group III are subsequently found to be allowable, the method claims of Groups I – II and IV will be considered for rejoinder (See MPEP 821.04).

Claims 1 – 20 are pending, of which claims 1 – 3 and 11 – 18 have been drawn to a non-elected invention. Claims 4 – 10, 19, and 20 are readable upon the elected invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4, 5, 7, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Wheatley *et al.* (US 5,352,436).

Wheatley discloses gas microbubbles as contrast agents for ultrasonic imaging (abstract). The microbubbles are prepared from a phosphate buffered solution comprising first surfactant, such as polyoxyethylene sorbitan monolaurate, etc. and a second surfactant, such as a sorbitan fatty acid esters (column 3 – 4 and Example 2). The mean particle diameter may be 3.59 micron (column 6, line 2). The surfactant-stabilized microbubbles are injected and used for ultrasonic imaging (Example D).

The limitation of claim 4 wherein the microcapsule or nanocapsule is produced in accordance with the method of claim 1, 2, or 3 appears to be a product-by-process type limitation. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." See *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Since Wheatley teaches microcapsules which are composed of the same materials as those used in the method of claim 2, the microcapsules of the '436 patent meet the claims. Regarding claims 19 and 20, it is noted that Wheatley

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does not specifically recite that the microbubbles are used for enhancing delivery to selected tissue via holes in the vasculature too narrow for access via larger microcapsules. However, it is interpreted that the microbubbles of Wheatley would inherently accomplish this method upon administration and exposure to ultrasonic waves because the definition of nanocapsules in the present application appears to include "nanocapsules" which are less than 8 micrometers in diameter (see paragraph 0024 of the instant application). The microbubbles of Wheatley have a mean particle diameter of less than 3.59 micrometers (column 6, line 2), they are administered by injection (i.e. into the vasculature), and they are exposed to ultrasonic waves (i.e. upon imaging), thus they inherently meet the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4 – 10, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley (US 5,352,436) in view of Unger (6,033,645).

Wheatley discloses stabilized gas microbubbles for use as ultrasound contrast agents, as set forth above. Wheatley fails to teach that the microbubbles comprise a targeting agent.

Unger teaches vesicle compositions comprising a gas or gaseous precursor and a vesicles comprising lipids, proteins or polymers and their use in ultrasound imaging, and are particularly useful for diagnosing the presence of diseased tissue in a patient (abstract). The vesicles described herein include such entities commonly referred to as, for example, liposomes, micelles, bubbles, microbubbles, microspheres, lipid-, polymer- and/or protein-coated bubbles, microbubbles and/or microspheres, microballoons, aerogels, clathrate bound vesicles, and the like. The internal void of the vesicles may be filled with a liquid (including, for example, an aqueous liquid), a gas, a gaseous precursor, and/or a solid or solute material, including, for example, a targeting ligand and/or a bioactive agent, as desired (column 5, lines 52 – 61). For intravascular use, the vesicles preferably have diameters of less than about 30 micrometers, and more preferably, less than about 12 micrometers. For targeted intravascular use including, for example, binding to certain tissue, such as cancerous tissue, the vesicles may be significantly smaller, for example, less than about 100 nm in diameter (column 28, lines 23+).

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to include a targeting agent on the microbubbles of Wheatley because, as shown by Unger, it is well known in the art to include a targeting agent within contrast agents for targeted ultrasonic imaging. One would have been motivated to do so because the inclusion of such targeting agents may provide for site-specific imaging, such as imaging of specific tissues.

Conclusion

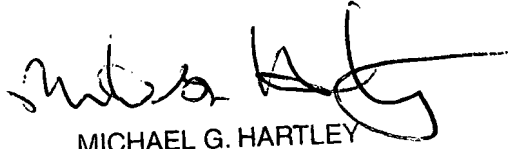
No claims are allowed at this time.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leah Schlientz whose telephone number is 571-272-9928. The examiner can normally be reached on Monday - Friday 8 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Hartley can be reached on 571-272-0616. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LHS



MICHAEL G. HARTLEY
SUPERVISORY PATENT EXAMINER